

## **Epilogue**

## THE MILITARY—CIVIL MISSION

According to an old maxim: "if you want a job done, give it to a busy man." The implied theory is that the busy man possesses the necessary skill, experience and tools to do them all well. The Corps of Engineers has been the Nation's "busy man" for nearly two centuries-and the jobs keep pouring in. What was once a specialty shop with a distinctly military cast, has become so diversified that it now encompasses almost every function of design, building and repair demanded by the Nation in war or peace. A list of the Corps' achievements would fill books and will not be recounted here; many were of epochal importance, but the most important may be those still to be done.

Today, there are those who would limit the Corps' operations, others who would circumscribe many of its diverse functions and some who would abolish it. While there is little novelty in the forms of opposition to Corps projects and policies, there is particular virulence in recent criticism. The adamant "now-not later" slogan of the instant reformists cries out for the summary reversal of established life modes and the immediate creation of a world of utopian purity. Other voices express a more reflective and realistic concern for the continuity of life coupled with the desire to reform what needs reforming.

A by-product of life, American-style, is an ever-compounding complexity engendering in its turn a continuous series of crises. The higher standard of living toward which Americans have aspired has always been characterized in terms of something more, larger and faster. The desire for a slower, simpler existence has had little currency until recent

years. The historic mission of the Corps has been to provide whatever Americans needed, even when it involved a choice of drastic alternatives. Since the beginnings of wagon roads, on through the development of canals, railroads, turnpikes and airways, Americans have enjoyed the gains they so avidly sought. The consequent system, with its cumulative glut of products, services and wastes, has produced a situation which now demands choices of unprecedented importance. At minimum, they are concerned with salvaging a quality of life; ultimately, they treat the mere matter of survival.

A large number of Americans will opt for the future with all its frightening complexity, just as many Americans chose to enjoy the benefits made possible by past engineering achievements of the Corps. While recent popular attitudes contain elements of a nostalgic yearning to return to the unrecoverable life modes of simpler times, it is probable that few would voluntarily renounce the conveniences of modern living, even as a pathway to a safe environment; still fewer are aware of the long, painful process by which those conveniences were evolved.

The mission of the Army Corps of Engineers was first spelled out by General Washington's Chief Engineer at Valley Forge in 1778. General DuPortail proposed to his superior an "absolutely indispensable establishment," with specific recommendations for its form, function and deployment. In some basics form and function are little changed.

Now, as then, it is essentially an officers' corps, the mass of its ranks filled by soldier-citizen specialists. DuPortails' sappers were selected from the ranks, the choice made of

the most vigorous soldiers and the preference given to carpenters and masons. For them "the pay ought to be greater than that of the ordinary foot soldier, because the service is exceedingly hard." For the selection of officers, "choice should be made of young men well bred, intelligent and fond of instruction."

Troops were apprenticed to old-world masters in the arts of fortification and military maneuvers, "to be instructed in everything that relates to the construction of field works—how to dispose of the earth—to cut the slopes—face with turf or sods—make fascines—cut and fix palisades." These were the skills required for the time and situation; there was an enemy to be frustrated, and a neophyte army to be protected while it acquired some military proficiency. With the issue resolved and America sovereign, other skills were added to the Corps repertoire. In 1802, the new Military Academy at West Point undertook the establishment of an American school of engineers.

National works of internal improvement had, at first, to be carried out by the one existing entity qualified to accomplish complex engineering assignments—the Engineer Department of the Army. The skills inherent to the devising of breastworks, revetments and *chevaux-de-frise* were readily transposed to techniques of harbor, breakwater and road construction. The "new engineer" began to emerge from the Military Academy in the 1820's; under Sylvanus Thayer's revolutionized curricula, West Pointers were equipped equally well as military and civil engineers. The new engineer still planned forts and strategic gun emplacements; he also undertook the design of bridges and light-

houses, the building of canals, the improvement of river channels and exploration of the western lands, mapping their geophysical features and classifying their flora and fauna.

In war, Engineer contingents were assigned support functions in liaison with every branch of the military, except the Signal Corps, in every theatre of operations. A parallel peacetime function sent engineer emergency relief wherever natural disasters occurred. The deployment of a bewildering variety of material and equipment in vast quantities, the logistical support of complex and diffuse operations—whether for disaster relief or combat—became standard procedure. Inevitably, it fell to the Army Engineers to mount the defenses against floods and to assume responsibility for husbanding the Nation's water resources.

Much has been said and written about "turning around" the Corps' mission, to put it on course with the "new conservation;" the context is usually in terms of diverting the pell-mell career of a destructive juggernaut. In fact, the reorientation of Corps objectives occurs continually within a broad and flexible organization. Turning the mission around presents no problem of Corps intractability, but rather one of determining, realistically, from which programs Americans will derive the most benefits. Once a program is established, the unequalled advantages of the Corps' method become apparent: chain of command implementation, thorough design studies, non-political advertising and strict adherence to Army contract regulations. Among the Federal Agencies, the Army Engineers are notorious for "going by the book" in the administration of contracts and for tight-fistedness in the expenditure of public monies. Well-known cases of cost overruns on

Corps projects are constantly exploited by Corps detractors, who consistently omit any reference to the equally well-known causes of those overruns. Original cost estimates for public works projects are vulnerable from the moment the projects are made public. Lengthy public hearings, rehearings and cumulative construction delays usually lead to an escalation of costs, due to rising prices of materials and services, exploitative inflation of real estate values and extended administrative overhead. Public awareness of an improvement project tends, perversely, to augment the price the public will eventually have to pay. On the other hand, Engineer files contain countless records of projects completed with balances on hand, attesting to adroit administration and consistently high performance in the application of engineering techniques.

A new brand of engineer for the new times is emerging from the Military Academy, from the Engineer School and from colleges and universities throughout the country. He is not only the young Corps officer, but the civilian staff specialist in the gestation levels of the Districts. His training has included all the traditional formulas and equations, plus a challenge to enter unexplored areas and to formulate yet undefined equations. Old line members of career civil staffs see in their midst new colleagues with new labels—agronomist, biologist, landscape architect, environmentalist, sociologist, ichthyologist, botanist—and remember when engineering was done, by and large, by engineers, who took a problem, defined it, designed it, built it and made it work. Old line, basic engineering has not been rejected by the “new look” department, but its horizons are wider, its

research deeper and its techniques subtler. The net change is in a broadened social awareness (an ingredient said to be lacking in traditional engineering) and a reemphasis on responsibility for the status of the natural environment.

The basis and pattern of the Corps’ civil mission are well established; the organizational structure is neither superior to nor very different from efficient organizations in the business-industry world. Its unique feature is to be found at the top—the Corps of Engineers command structure, staffed by officers superbly trained and imbued with the idea of fidelity to public trust. That idea pervades the functioning careers of 41,600 professionals who constitute the civilian work force of the Corps’ organization. The high caliber of the civil staff is maintained through selective recruiting, the Junior Engineer in Training (JET) program and the education and advancement program. The latter aims to raise professional performance levels within the organization while enhancing individual opportunities for career advancement, by providing refresher and degree courses at universities and colleges and participation in government and business-industry symposia. The ranks of the officer corps are still being replenished by “young men well bred, intelligent and fond of instruction.”

The Corps is vast, but not monolithic; it is sensitive and flexible and deals realistically with today’s complexities. Having absorbed all the earned praise, prestige and criticism of its 196 years, the Corps is still here; we might occasionally congratulate ourselves that it is. None of us has had to experience a time when it was not.